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File: USPT

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DOCUMENT-IDENTIFIER: US 6444280 B1

TITLE: Optical compensation sheet, liquid crystal display device, and liquid crystal composition

Brief Summary Text (26):

The liquid crystal composition which is preferably employed for preparing an optical compensation sheet of the invention comprises a non-chiral discotic liquid crystal compound having a polymerizable group, a chiral discotic compound having no polymerizable group or a chiral non-discotic compound having no polymerizable group, and a polymerization initiator, and has a chiral discotic nematic phase.

Detailed Description Text (2):

In the present invention, a composition containing both a chiral compound and a non-chiral discotic liquid crystal compound having a polymerizable group is used instead of using a chiral discotic liquid crystal compound having a polymerizable group alone, so as to form a stable discotic nematic phase of a statistically uniform twisted orientation.

Detailed Description Text (39):

The optical anisotropic layer is formed in the following manner. First, a coating solution is prepared by mixing a non-chiral discotic liquid crystal compound having a polymerizable group, a chiral discotic or non-discotic compound having no polymerizable group, and if needed, a polymerization initiator or other additives. The coating solution is applied onto an orientation layer (for perpendicular alignment) beforehand formed on a support, and then heated so as to fix the alignment of the non-chiral liquid crystal compound (if the chiral discotic compound is used, its molecules are also aligned). In the course of polymerization of the liquid crystal composition in a chiral discotic nematic phase, the alignment is fixed with no change.

Detailed Description Text (45):

The non-chiral discotic liquid crystal compound having a polymerizable group is fixed in the coating layer with the alignment maintained. This procedure is preferably conducted in the course of polymerization of the polymerizable group, so that the liquid crystal compound may be fixed in the form of polymer of the liquid crystal composition showing a chiral discotic nematic phase. The reaction may be thermal- or photo-polymerization, and the photo-polymerization is preferred. For the photo-polymerization, an initiator is preferably used.

Detailed Description Text (56):

Properties of Liquid Crystal Composition Containing Chiral Compound and Non-chiral Discotic Liquid Crystal Compound Having Polymerizable Group